A Proposal for an Organization of Performance Information Types

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Outline

- *Motivation/Requirements*
- *Proposal for organization of information type categories*
- *Proposal for required/optional fields*
- *Fill in organization with some performance information generated from various tools*

Motivation

- *Current focus on GMA and protocol*
- *Organization of types has the following benefits:*
  - *Aids in the development of a dictionary*
  - *Allows for the addition of new types in a methodical manner*
  - *Complements the tool taxonomy to identify areas where additional performance tools are needed*

Assumptions

- *There are many different performance information types*
  - *Ranging from resource-centric to application-centric*
- *Some of the types have common required fields*
- *Focus on GMA types*
  - *Producer or consumer of the information type has registered with the GMA Directory Service*
  - *Use GMA information format*

Requirements

- *Easily extended*
  - *Different types can be added easily*
- *Broad range*
  - *Allows for many different performance information types*
- *Compact, bounded*
  - *Eliminates redundancy*

Proposal

- *Hierarchical*
  - *Satisfies requirements*
- *First level of the hierarchy*

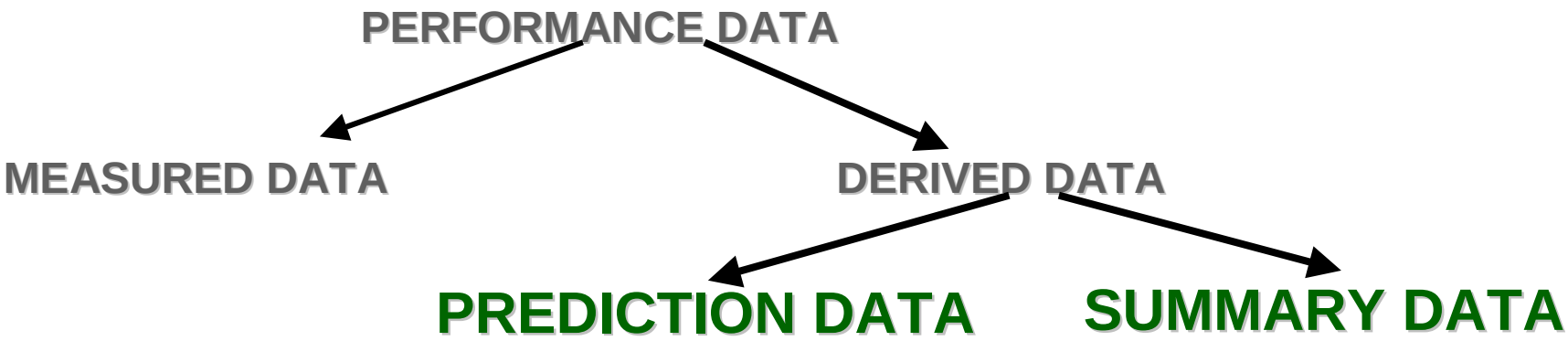
Performance Data

- *Identifies the required/optional attributes contained in all events (e.g., type of event at a point in time)*

Proposal

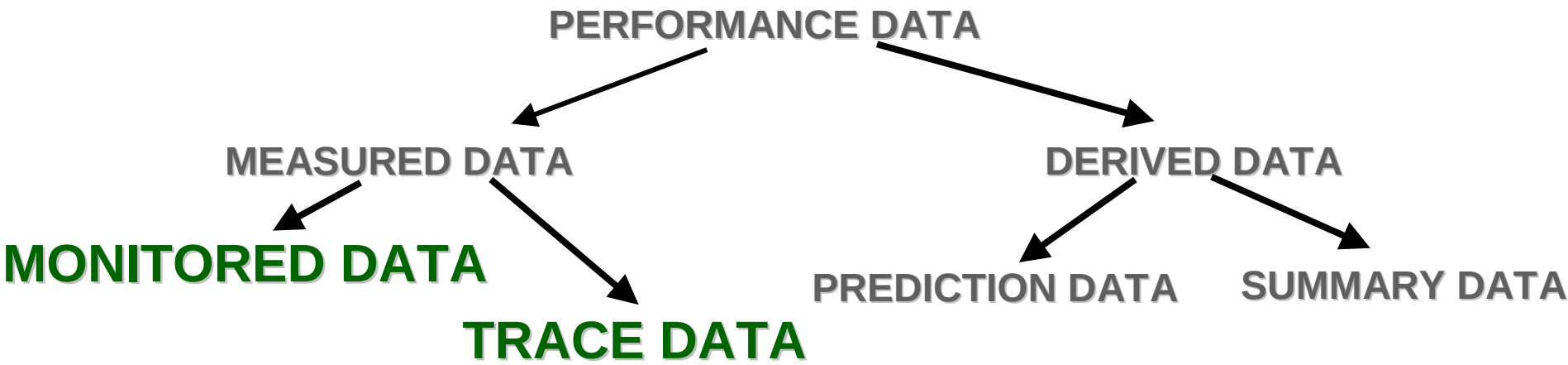
- *Measured Data:*
  - *Actual measurements at a given instance of time*
    - *latency on a link, number of page faults)*
- *Derived Data:*
  - *Measurements that are derived from events that have occurred over a set of resources and/or a period of time*
    - *latency on a set of links, bandwidth on a set of links, page faults over the last week)*

Proposal



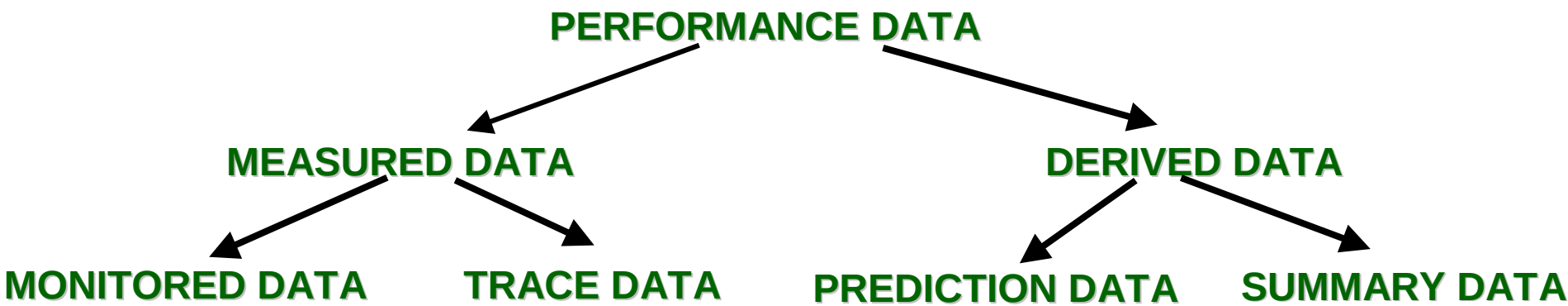
- *Prediction Data:*
  - *Prediction based upon some past data from a window of time*
    - *predicted bandwidth tomorrow based on bandwidth data from two days ago*
- *Summary Data:*
  - *Summary (e.g., mean and standard deviation) of some past data from some window of time*
    - *aggregate bandwidth of a set of links over the past week*

Proposal



- *Monitored Data:*
  - *Actual measurements of data*
    - *round trip time to a remote host*
- *Trace Data:*
  - *Sequenced performance data*
    - *required steps for a computation*

Proposal

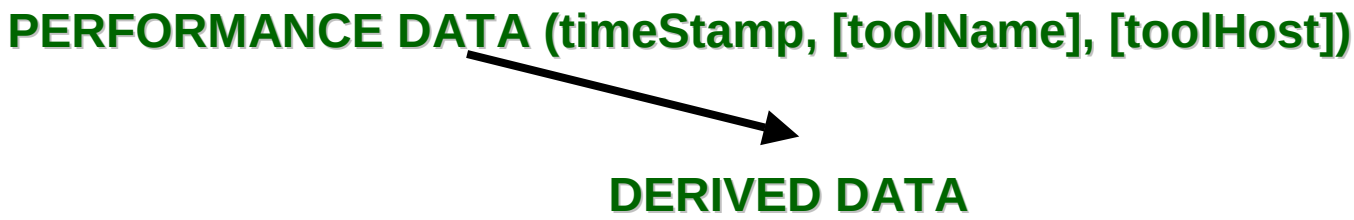

PERFORMANCE DATA
MEASURED DATA
DERIVED DATA
MONITORED DATA
TRACE DATA
PREDICTION DATA
SUMMARY DATA

Fields

PERFORMANCE DATA

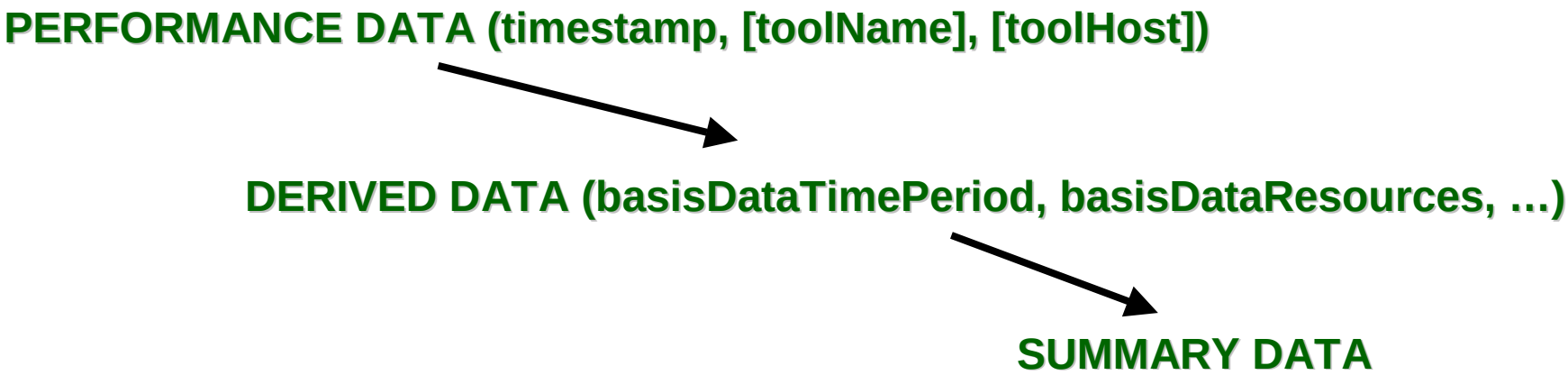
- *Performance Data*
  - *The base type that defines attributes that are required and optional in all grid performance information*
  - *timeStamp*
  - *toolName [optional]*
  - *toolHost [optional]*

Fields



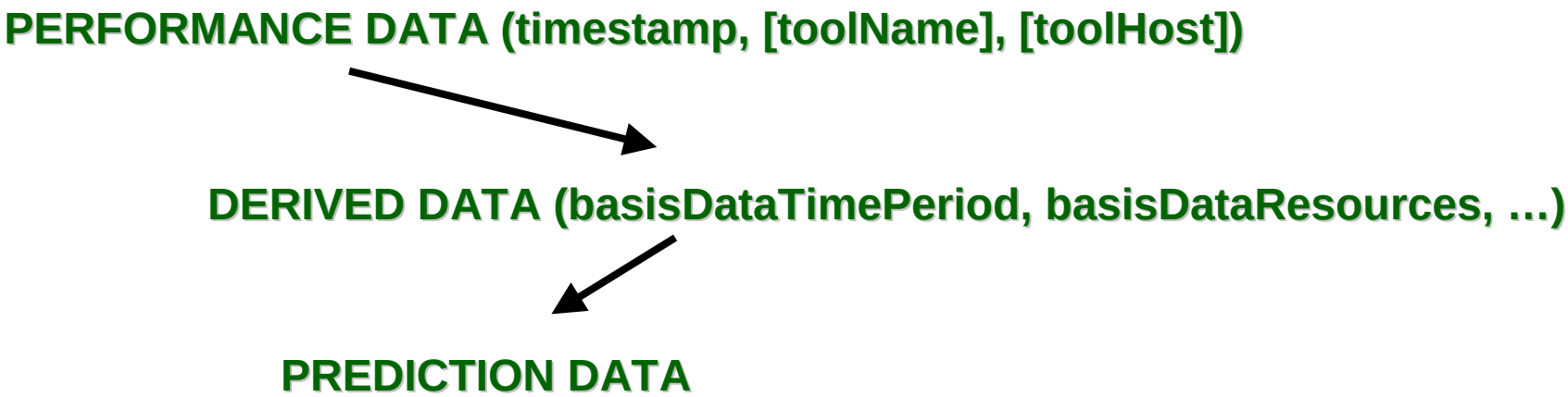
- *Derived Data*
  - *Inherits from Performance Data*
  - *basisDataTimePeriod*
  - *basisDataResources*
  - *basisDataTools [optional]*

Fields



- *Summary Data*
  - *Inherits from Derived Data*
  - *Accuracy [optional]*

Fields

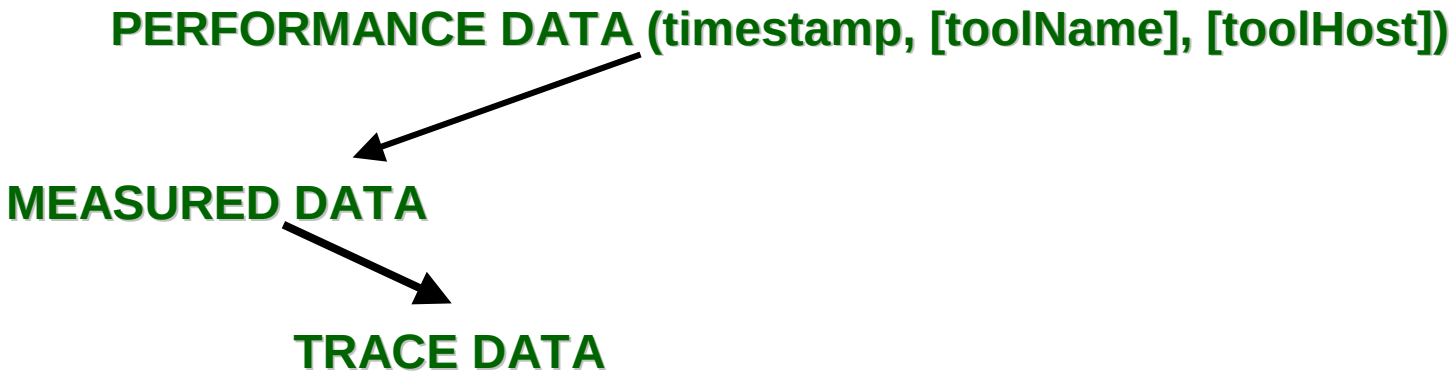


- *Prediction Data*
  - *Inherits from Derived Data*
  - *validTimePeriod*
  - *accuracy*

Fields

- *Measured Data*
  - *Inherits from Performance Data*
  - *resourceName*

Fields



- *Trace Data*
  - *Inherits from Measured Data*
  - *sequenceNumber*

Fields

- *Monitored Data*
  - *Inherits from Measured Data*

Organization